



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,721	12/24/2003	Cheng-Yi Lu	4006-279	8316
22429	7590	09/20/2005		
LOWE HAUPTMAN GILMAN AND BERNER, LLP 1700 DIAGONAL ROAD SUITE 300 /310 ALEXANDRIA, VA 22314				
			EXAMINER CHANDRAN, BIJU INDIRA	
			ART UNIT 2835	PAPER NUMBER

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/743,721	<b>Applicant(s)</b> LU ET AL.	
	<b>Examiner</b> Biju Chandran	<b>Art Unit</b> 2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

1. The oath or declaration is defective because: The word "CENTRIFULGAL" in the title should be changed to "CENTRIFUGAL".

### ***Claim Rejections - 35 USC § 103***

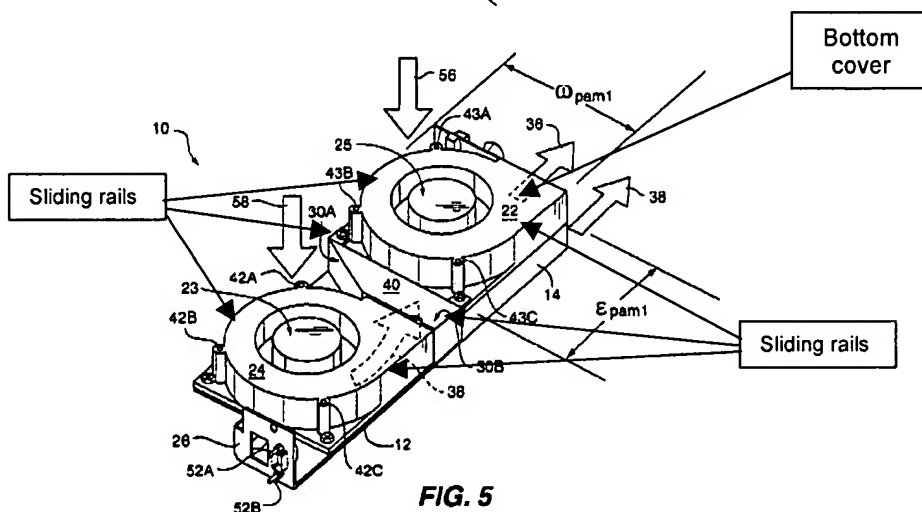
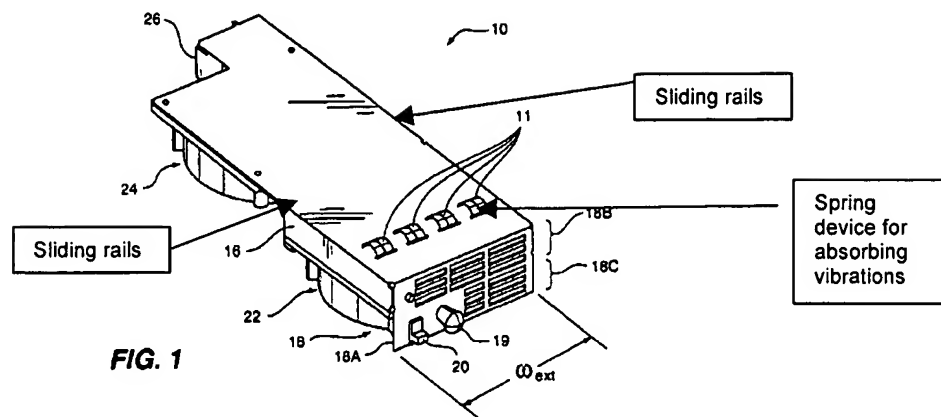
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,3,4, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. (U.S. Patent 6,042,474) in view of Perazzo (U.S. Patent 6,813,152 B2).  
  
Harvey et al. disclose a heat dissipation module (10) with twin centrifugal fans, comprising: a panel (18A) disposed the front surface of the heat dissipation module (10); a first fan (22) having an first outlet (32) coupling to an inner surface of the panel, and the first fan sucking a part of hot air (56) generated by an electrical equipment and exhausting the part of the hot air

Art Unit: 2835

out of the heat dissipation module by way of the first outlet and the panel; an air duct (34) coupling to the inner side of the panel and on a top of the first fan; a second fan (24) having a second outlet (40) coupling to a rear side of the air duct, and the second fan sucking another part (58) of the hot air generated by the electrical equipment and exhausting part of the hot air out of the heat dissipation module by way of the second outlet, the air duct and the panel; and a plurality of sliding rails disposed on both sides of the first fan and the second fan, the sliding rails providing the heat dissipation module with an ability to slide and couple to the electrical equipment while the heat dissipation module is being inserted into the electrical equipment (column 4, line 60).



Harvey et al. do not expressly disclose the panel disposed on the front surface to be of honeycomb structure. Perazzo discloses a heat dissipation module with front panel having a honeycomb structure. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the front panel of Harvey et al. with the honeycomb panel taught by Perazzo to increase the volume of airflow through the panel while eliminating safety concerns (Perazzo, column 5, lines 30-45).

Art Unit: 2835

- With respect to Claim 3, Harvey et al. further discloses that the electrical equipment is a computer server system (column 4, line 57; column 9, line 1).
  - With respect to claim 4, Harvey et al. further discloses that the heat dissipation module further comprises a locking device (20) to fix to the electrical equipment after the heat dissipation module is installed in the electrical equipment (column 4, lines 60-65).
  - With respect to claim 7, Harvey et al. further discloses a spring device (11), which will absorb vibrations and remove an electromagnetic wave (column 5, line 10).
  - With respect to claim 8, Harvey et al. further disclose an upper cover and a bottom cover, wherein edges of the upper cover and the bottom cover are formed the sliding rails of the heat dissipation module (marked in Figure) and the upper cover and the bottom cover are utilized to couple with the first fan and the second fan
3. Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. in view of Perazzo as applied to claim 1, and further in view of Varghese et al. (US 2001/0037985). Harvey et al. does not expressly disclose that the electrical equipment comprises of a plurality of rails for coupling with the sliding rails of the heat dissipation module. Varghese et al., discloses an electrical equipment with rails (18) for slidably mounting electrical modules.

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the sliding rails taught by Varghese et al., in an electrical apparatus that uses the heat dissipation module taught by Harvey et al., for increased servicing ease and access to internal circuitry (Varghese et al., paragraphs 0006-0007).

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. as modified by Perazzo, and further in view of Bonet (U.S. Patent 6,414,845 B2). Harvey et al. as modified by Perazzo meets all the limitations of claim 4. Harvey et al. does not expressly disclose the locking device to be a locking screw. Bonet discloses a heat dissipation module with a locking screw for a locking device (312). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the locking device of Harvey et al. with the locking screw taught by Bonet to ensure that the heat dissipation device is rigidly secured to the chassis.
5. Claims 6, 9, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. as modified by Perazzo, and further in view of Seesemann (U.S. Patent 6,384,733 B1).
  - Regarding claim 6, Harvey et al. as modified by Perazzo meets all the limitations of claim 1. Harvey et al. further discloses that the heat

dissipation module further comprises a temperature-detecting device for turning one or both fans on or off to control cooling (column 8, lines 1-10).

Harvey et al. does not expressly disclose that the temperature-detecting device controls the rotational speeds of the fans. Seesemann discloses a temperature-detecting device to control the rotational speed of fans (column 1, lines 35-40). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the temperature-detecting device of Harvey et al. with the temperature-detecting device taught by Seesemann for fine control of temperature and to effectively prevent overheating of electronic devices (Seesemann, column 1, line 20).

- With respect to claim 9, Harvey et al. disclose a heat dissipation module with twin centrifugal fans utilized in a computer server system, that comprise: a panel (18A) disposed on a front surface of the heat dissipation module; a first fan (22) having a first outlet (32) coupling to an inner surface of the panel, and the first fan sucking a part of hot air (56) generated by an electrical equipment and exhausting the part of the hot air out of the heat dissipation module by way of the first outlet and the panel; an air duct (34) coupling to the inner side of the panel and on a top of the first fan; a second fan (24) having a second outlet (40) coupling to a rear side of the air duct, and the second fan sucking another part (58) of the hot air generated by the electrical equipment and exhausting part of the



hot air out of the heat dissipation module by way of the second outlet, the air duct and the panel; a plurality of sliding rails disposed on both sides of the first fan and the second fan (marked in Figure), the sliding rails providing the heat dissipation module sliding and coupling to the electrical equipment while the heat dissipation module is being inserted into the electrical equipment (column 4, line 60); a plurality of spring devices (11) for absorbing vibrations caused by the first fan and the second fan and removing an electromagnetic wave (column 5, line 10); and a temperature-detecting device for controlling (column 8, lines 1-10) the first fan and the second fan. Harvey et al. do not expressly disclose the panel disposed on the front surface of the heat dissipation module to be of honeycomb structure, and that the temperature-detecting device controls the rotational speeds of the fans. Perazzo discloses a heat dissipation module with front panel having a honeycomb structure, and Seesemann discloses a temperature-detecting device to control the rotational speed of fans (column 1, lines 35-40). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the front panel of Harvey et al. with the honeycomb panel taught by Perazzo to increase the volume of airflow through the panel while eliminating safety concerns (Perazzo, column 5, lines 30-45), and to modify the temperature-detecting device of Harvey et al. with the temperature-detecting device

taught by Seesemann for fine control of temperature and to effectively prevent overheating of electronic devices (Seesemann, column 1, line 20).

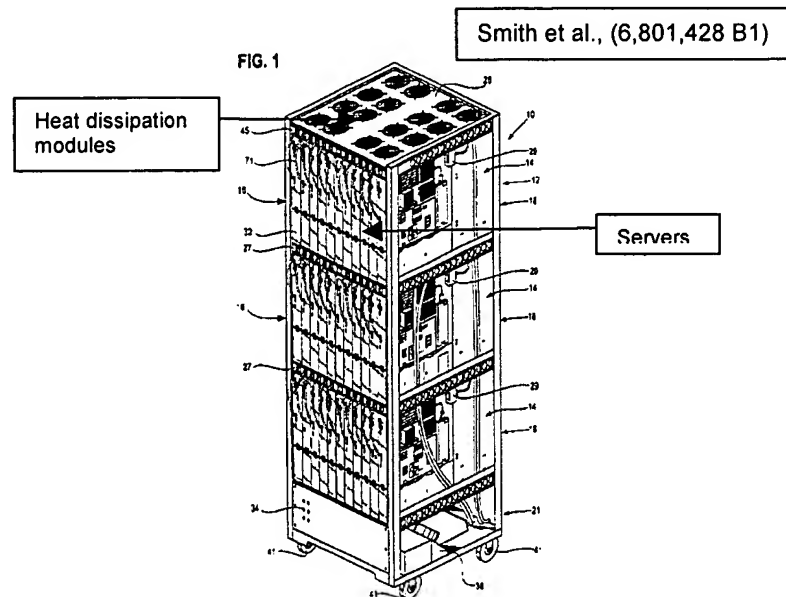
- With respect to claim 11, Harvey et al. further discloses that the heat dissipation module further comprises a locking device (20) to fix to the computer server system after the heat dissipation module is installed in the computer server. (Column 4, lines 60-65).
  - With respect to claim 13, Harvey et al. further disclose an upper cover and a bottom cover, wherein edges of the upper cover and the bottom cover are formed the sliding rails of the heat dissipation module (marked in Figure) and the upper cover and the bottom cover are utilized to couple with the first fan and the second fan.
6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. in view of Perazzo, and Seesemann as applied to claim 9, and further in view of Varghese. Harvey et al. does not expressly disclose that the computer server system comprises of a plurality of rails for coupling with the sliding rails of the heat dissipation module. Varghese et al., discloses a computer server with rails (18) for slidably mounting electrical modules. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate the sliding rails taught by Varghese et al., in an computer server that uses the heat dissipation module taught by

Harvey et al., for increased servicing ease and access to internal circuitry (Varghese et al., paragraphs 0006-0007).

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. in view of Perazzo and Seesemann as applied to claim 11, and further in view of Bonet. Harvey et al. does not expressly disclose the locking device to be a locking screw. Bonet discloses a heat dissipation module with a locking screw for a locking device (312). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the locking device of Harvey et al. with the locking screw taught by Bonet to ensure that the heat dissipation device is rigidly secured to the server.
8. Claims 14-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. in view of Smith et al. (U.S. patent 6,801,428 B2), Perazzo and Seesemann.
  - Regarding claim 14, Harvey et al. disclose a computer server system comprising a plurality of heat dissipation modules (column 8, line 60 – column 9, line 4) with twin centrifugal fans (22 and 24) disposed in the fixing slots, wherein each of the heat dissipation modules further composes: a panel (18A) disposed on a front surface of the heat dissipation module (10); a first fan (22) having a first outlet (32) coupling to

an inner surface of the panel, and the first fan sucking a part of hot air (56) generated by an electrical equipment and exhausting the part of the hot air out of the heat dissipation module by way of the first outlet and the panel; an air duct (34) coupling to the inner side of the panel and on a top of the first fan; a second fan (24) having a second outlet (40) coupling to a rear side of the air duct, and the second fan sucking another part of the hot air (58) generated by the electrical equipment and exhausting part of the hot air out of the heat dissipation module by way of the second outlet, the air duct and the honeycomb panel; a plurality of sliding rails disposed on both sides of the first fan and the second fan (marked in Figure), the sliding rails providing the heat dissipation module with an ability to slide and couple with the electrical equipment while the heat dissipation module is being inserted into the electrical equipment (column 4, line 60), a plurality of spring devices (11) for absorbing vibrations caused by the first fan and the second fan and removing an electromagnetic wave (column 5, line 10); and a temperature-detecting device for controlling the first fan and the second fan (column 8, line 1-10). Harvey et al. do not expressly disclose a server rack installing a plurality of servers thereon; a plurality of fixing slots disposed in a top portion of the server rack, nor do they disclose the panel disposed on the front surface of the heat dissipation module to be of honeycomb structure, or that the temperature-detecting device controls the rotational speeds of the fans. Smith et al. (U.S. patent 6,801,428 B2)

disclose a server rack (10) with a plurality of servers installed on it, with a plurality heat dissipation modules in fixing slots disposed in the top portion.



Perazzo discloses a heat dissipation module with front panel having a honeycomb structure, and Seesemann discloses a temperature-detecting device to control the rotational speed of fans. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the computer server system of Harvey et al. with the rack mounted server system taught by Smith et al. to increase the computational power per unit area of floor space, to modify the front panel of Harvey et al. with the honeycomb panel taught by Perazzo to increase the volume of airflow through the panel while eliminating safety concerns (Perazzo, column 5, lines 30-45), and to modify the temperature-detecting device of Harvey et al. with the temperature-detecting device taught by

Seesemann for fine control of temperature and to effectively prevent overheating of electronic devices (Seesemann, column 1, line 20).

- With respect to claim 15, Smith et al. further discloses sliding rails in the fixing slots for coupling with sliding rails of the heat dissipation module (Figure 8, Smith et al.).
- With respect to claim 16, Harvey et al. further discloses that the heat dissipation module further comprises a locking device (20) to fix to the computer server system after the heat dissipation module is installed in the server. (Column 4, lines 60-65).
- With respect to claim 18, Harvey et al. further disclose an upper cover and a bottom cover, wherein edges of the upper cover and the bottom cover are formed the sliding rails of the heat dissipation module (marked in Figure) and the upper cover and the bottom cover are utilized to couple with the first fan and the second fan.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harvey et al. in view of Perazzo, Seesemann and Smith et al., as applied to claim 16, and further in view of Bonet. Harvey et al. do not expressly disclose the locking device to be a locking screw. Bonet discloses a heat dissipation module with a locking screw for a locking device (312). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the

Art Unit: 2835

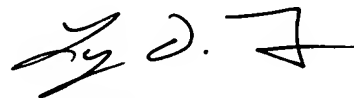
locking device of Harvey et al. with the locking screw taught by Bonet to ensure that the heat dissipation device is rigidly secured to the computer server system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Biju Chandran whose telephone number is (571) 272-5953. The examiner can normally be reached on 8AM - 5PM. Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached on (571) 272-2092. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bic



**LYNN FEILD**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**